

COMMUNICATION  
WIRELESS PORTFOLIO SYSTEM AND DEVICE

CROSS REFERENCE TO RELATED APPLICATIONS

5  
*JW/AT*  
This patent application is a continuation-in-part of, and claims priority from commonly assigned pending U.S. Patent Application No. 09/552,364 entitled Wireless Portfolio System and Device, to Weinzierl, *et al.*, and filed on April 19, 2000. In addition, the patent application is also related to and claims priority of commonly assigned U.S. Patent Application No. 09/775,327, entitled Wireless Tablet For a Personal Wireless Network, to Fillebrown, *et al.*, and filed on February 1, 2001, and is hereby incorporated by reference.

TECHNICAL FIELD

The present invention relates generally to personal digital assistants (PDAs) and, more particularly, the present invention relates to systems and devices that integrate PDA technology with wireless communication technology.

STATEMENT OF A PROBLEM SOLVED BY THIS INVENTION

20 Some professionals prefer paper-bound day planner portfolios. Day planner portfolios, such as Day Timers, Franklin Planners, or Day Runners, for example, are fixtures in practically every professional's life. In general, a Day Planner portfolio provides daily, weekly, and monthly calendars in which the professional may enter schedules or other important information. Also, day planner portfolios may provide other task management systems, such as "to-do lists", address directories, and sales

tracking systems. Some day planner portfolios even include maps, prescription information, expense tracking reports, lists of holidays, business card holders, and any other information or resource that the professional wishes to have at his fingertips.

5

Some professionals use paperless day planner portfolios. The use of personal digital assistants (PDAs) -- including portable computing devices (PCDs), Palm® devices, and Visor® devices -- have become nothing short of a phenomenon. Since the introduction of PDAs in 1996, the number of users of these devices has proliferated to more than six million users (by the start of the year two thousand). As additional features and functions (such as voice recognition technology), are developed for PDAs, the use of PDAs will continue to grow.

10  
11  
12  
13  
14  
15  
16  
17  
18  
19

20

Unfortunately, to access information in a PDA the device must first be turned on and then the user must explore a directory of information links prior to accessing that information. This is required for even the simplest and most frequently accessed information, making paper-bound day planner portfolios the day planner of choice for some tasks. In addition, PDAs may lose all of their stored data in the event of losing power, again creating another reason to not throw away paper-bound day planner portfolios.

Today's professionals demand much more from their day planner portfolios. For example, when an executive is on the road he may need to provide his administrative assistant with the ability to update his schedule independently of the

5 executive. In addition, professionals could benefit from turning over the administration of their schedule and contact information to their administrative assistant. Moreover, it is desired to allow the executive to share the current schedule to his administrative assistant without providing assistance. Unfortunately, because the professional typically has the day planner portfolio with him, the administrative assistant cannot update or access the day planner portfolio in real time. Furthermore, it would be advantageous to be able to update and access task management systems, schedules, and other information contained in the day planner portfolio in real time.

10 Therefore, there exists the need for a versatile system and device that facilitates updating and keeping current, in real time, a day planner portfolio.

SELECTED OVERVIEW OF AN EMBODIMENT

15 *John A. B.*  
The present invention achieves technical advantages as a system and a device that integrate the advantages of a paperless day planner portfolio with a paper-bound day planner portfolio to create a wireless day planner portfolio. The system generally includes an interface, a communication device, and a data entry system. One embodiment of the device more particularly provides a port enabled for a PDA, a transceiver-enabled wireless modem device, and a keyboard—all contained within a portfolio. Thus implemented, the present invention provides the user or a remote user with the ability to update information in his portfolio in the background, and in real time. In addition, as the user enters data in the wireless day planner, a planner-

*A2*  
based system is updated via a wireless connection. Furthermore, the port folio enables the user to access paper-based information when this is more efficient.

5           In one embodiment, the invention is a system of providing a wireless day planner portfolio. The system includes a communication device, an interface coupled to the communication device, and a data entry system coupled to the interface. Likewise, in another embodiment, the present invention is a wireless day planner portfolio system that comprises a means for transmitting a radio signal, a means for communication coupled to the means for transmitting, and a means for data entry coupled to the means for communication.

10           In yet another embodiment, the present invention is a wireless day planner device. The device uses a communication device, such as a wireless modem, an interface coupled to the communication device enabled to communicate with a PDA, and a data entry system, such as a keyboard, coupled to the interface.

15           Other embodiments of the invention provide additional features. For example, in one embodiment, the invention is a system of providing a wireless day planner portfolio that includes a communication device, an interface coupled to the communication device, and a data entry system coupled to the interface, wherein the communication device, the interface, and the data entry system are coupled together within a portfolio. Preferably, the invention provides for wireless communication between the portfolio device and a computing device which could be maintained in a pocket or other securing means.

In still another embodiment, the invention is a thin-client wireless day planner portfolio. In this embodiment the invention includes a communication device, a processor coupled to the communication device, an interface coupled to the communication device, and a data entry system coupled to the interface. Of course, other embodiments, will be apparent to those of ordinary skill in the art upon a detailed reading of this specification in view of the appended drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Various aspects of the invention, as well as an embodiment, are better understood by reference to the following **EXEMPLARY EMBODIMENT OF THE BEST MODE**. To better understand the invention, the **EXEMPLARY EMBODIMENT OF THE BEST MODE** should be read in conjunction with the drawings in which:

5 Figure 1 illustrates a PDA having a module attached thereto;

10 Figure 2 shows a device configured as a wireless day planner portfolio (device);

15 Figure 3 illustrates a wireless day planner portfolio in communication with a PDA;

Figure 4 is an exploded view of a wireless portfolio;

20 Figure 5 shows a front-closed view of a wireless portfolio;

Figure 6 illustrates an alternative embodiment of the wireless portfolio enabled to communicate wirelessly; and

Figure 7 is a block-diagram of a wireless portfolio configured to emphasize additional enhancements and features.

**AN EXEMPLARY EMBODIMENT OF THE BEST MODE**

A portfolio device (portfolio) is provided that encompasses a communications device, an interface, and a data entry system coupled together within a folio or other binding. The invention provides the user with the ability to update information in a portfolio in the background, and in real time. Secondly, as the user enters data in the wireless day planner, a system located remotely from the invention is responsively updated via a wireless connection. Likewise, data entered remotely is wirelessly updated in the user's portfolio. Thirdly, the portfolio enables the user to access paper-based information when this is more efficient. Furthermore, the invention enables a user to re-charge a battery while docking a PDA with the invention. Accordingly, the invention is a system and a device that integrate the advantages of a paperless day planner portfolio with a paper-bound day planner portfolio. The system generally includes an interface, a communication device and a data entry system. One embodiment of the device more particularly provides a wireless interface enabled to communicate with a computing device, such as a PDA.

When reading this section (An Exemplary Embodiment of the Best Mode, hereinafter "exemplary embodiment"), one should keep in mind several points. First, the following exemplary embodiment is what the inventor believes to be the best mode for practicing the invention at the time this patent was filed. Thus, since one of ordinary skill in the art may recognize from the following exemplary embodiment that substantially equivalent structures or substantially equivalent acts may be used to achieve the same results in exactly the same way, or to achieve the same results in a not dissimilar way, the following exemplary embodiment should not be

interpreted as limiting the invention to one embodiment.

Likewise, individual aspects (sometimes called species) of the invention are provided as examples, and, accordingly, one of ordinary skill in the art may recognize from a following exemplary structure or an exemplary act that a substantially equivalent structure or substantially equivalent act may be used to either achieve the same results in substantially the same way, or to achieve the same results in a not dissimilar way. Accordingly, the recitation of a species invokes the genus to which that species belongs as well as related species in that genus. Likewise, the recitation of a genus invokes the species known in the art. Furthermore, it is recognized that as technology develops, a number of additional ways to achieve an aspect of the invention may arise. Such advances are hereby incorporated within their respective genus should be recognized as being functionally equivalent or structurally equivalent to the aspect shown or described.

Second, aspects of the invention, including elements, acts, functions, and relationships (shown or described) should not be interpreted as being essential unless they are explicitly described and identified as being essential. The only essential aspects of the invention are identified by the claims. Third, a function or an act should be interpreted as incorporating all modes of doing that act or function, unless otherwise explicitly stated. For example, "tacking" may be done by nailing, stapling, gluing, hot gunning, riveting, etc. Fourth, unless explicitly stated otherwise, conjunctive words (such as "or", "and", "including", and "comprising") should be interpreted in the inclusive, not the exclusive, sense. Fifth, the words "step" and

“means” are provided to facilitate the reader’s understanding and do not mean “means” or “step” as defined in §112, paragraph 6 of 35 U.S.C. unless used as “means for –functioning–“ or “step for –functioning–“ in the **Claims** section.

5 *Jpr* *133* Features, functions and other enhancements may be provided to a personal digital assistant (PDA) through the use of a module, such as a memory module or a communication module, for example. Figure 1 illustrates a personal digital assistant 110 having an email preview module 120 attached thereto. Although a PDA is illustrated in Figure 1, it should be understood that other devices in the PDA family, such as a personal computing device (PCD), or another computing device may serve the functionality of a PDA. For example, a laptop may provide similar functionality.

10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20 A PDA system generally includes hardware capable of executing machine readable instructions, software for executing acts (typically machine readable instructions) that produce the desired result, hybrids of hardware and software, and PDA subsystems. Hardware generally includes the physical PDA as well as modules that add functionality to the PDA system. In addition, hardware may include any physical device that is capable of storing machine readable instructions-- such as computer memory or other data storage devices. In addition, hardware also includes things for transferring signals, such as a modem, a modem card, receivers, and transceivers, for example. Hardware also encompasses devices such as means for communicating with a PDA, including ports such as flash card ports, for example.

The invention provides the ability to connect a paper-bound day planner

portfolio that is wireless enabled with a paperless day planner portfolio to create a wireless day planner portfolio. Figure 2 shows a device configured as a wireless day planner portfolio 200 (wireless day planner portfolio device). The day planner portfolio 200 shown in Figure 2 is illustrated as being opened to a data entry system 230. In general, the wireless day planner portfolio 200 provides a day planner portfolio system (such as the one discussed below), that may be housed inside a folio 220. The folio 220 provides a cover for papers and electrical components associated with the wireless day planner portfolio 200, as well as a binder for holding papers and a component housing insert for providing structural support for a wireless day planner portfolio system. The folio may be made of any environmentally protective material such as leather, vinyl, or plastic derivatives, for example. The data entry system 230 could be any amalgamation of devices that enable information to be entered into an attached device, such as a PDA. For example, the data entry system 230 could be a voice recognition system, but is preferably a keyboard.

Also illustrated in Figure 2 is a device interface portal (interface portal) 210. The interface portal 210 provides access to an interface (not shown). Although the interface portal 210 shown is configured to be a PDA device interface portal, it should be understood that the interface portal 210 could also be configured to adapt to a laptop, smart phone, two way pager, or other device.

Figure 3 illustrates a wireless day planner portfolio 400 in communication with a PDA 110. Illustrated as polygons within the wireless day planner portfolio system 400 are a plurality of subsystems. Some subsystems enable the wireless day

planner portfolio system 400 to communicate with a PDA or a remote terminal, while other subsystems provide enhanced features and functionality for the wireless day planner portfolio system 400. One subsystem is a means for communicating 410 which could be an interface for connection to devices through wireline and wireless communication pathways, and is preferably a port for the PDA 110. Another subsystem is a logic 420 which could be implemented as a digital signal processor (DSP), a computer processor, or printed circuit board (PCB), for example.

Also incorporated within the wireless day planner portfolio system 400 is a means for transmitting 430 that is a transmitting device such as a receiver, a transceiver, or a spider device, for example. The means for transmitting is attached to an internal antenna 435 that is capable of sending and receiving radio communications. The wireless day planner portfolio system 400 may also incorporate a memory 440. The memory 440 could include passive/semi-permanent data storage, such as random access memory (RAM), as well as permanent data storage, such as read only memory (ROM). Thus, the memory 440 stores a program algorithms needed to process data entered by a user or received by a means for transmitting.

In addition, it may also be desirable to provide localized power for the wireless portfolio planner. Accordingly, a power source 450, such as a battery, for example, is built into the wireless day planner portfolio system 400. Furthermore, the power source 450 is preferably a lithium ion battery. A means for data entry 460 is provided by the wireless day planner portfolio system 400. The means for data

entry 460 may be any data entry system that enables a user to enter information into the wireless day planner portfolio system 400. For example, the means for data entry 460 is preferably a keyboard, but could also be a voice recognition system, or a touch sensitive screen, for example.

5

*Qmz A4*

In operation, a user will attach the PDA 110 to the means for connecting 410 and enter information into the PDA 110 by interacting with the means for data entry 460. In addition, information received by the means for transmitting may be relayed to the PDA 110. Likewise, information may be uploaded to another device, such as a host computer, a remote server, or another wireless day planner portfolio, for example. In addition, a user may use the power source, or a hardwire connection 455 to the wireless day planner portfolio system to recharge the PDA 110 or whatever device is attachable to the wireless day planner portfolio.

□ 010  
150  
151  
152  
153  
154  
155  
156  
157  
158  
159  
160  
161  
162  
163  
164  
165  
166  
167  
168  
169  
170  
171  
172  
173  
174  
175  
176  
177  
178  
179  
180  
181  
182  
183  
184  
185  
186  
187  
188  
189  
190  
191  
192  
193  
194  
195  
196  
197  
198  
199  
200  
201  
202  
203  
204  
205  
206  
207  
208  
209  
210  
211  
212  
213  
214  
215

20

Figure 4 is an exploded view of a wireless day planner device 300. As can be seen from Figure 4, the wireless day planner device 300 typically includes a folio 310, a keypad protector 320, a keypad cover 330, a keypad 340, a printed circuit board (PCB) 350, a power source 360, a component housing insert 370, and a communication device 380. The folio 310 shown in Figure 4 is illustrated as a leather binder and has disposed within it the component housing insert 370 that provides structural support and integrity for the wireless day planner portfolio system 400. The keypad cover 320 is attachable to a binder and provides protection to the wireless day planner portfolio system 400, and particularly the keypad 340. Accordingly, the keypad cover 320 is preferably made of a rigid, water resistant

material.

5 A keypad cover 330 lays over the keypad 340 to prevent dust and other electrical contaminants from corrupting the electrical integrity of the wireless day planner portfolio system 400, and particularly the keypad 340. Accordingly, the keypad cover 330 is water resistant and fits snugly over the keypad 340. The keypad is preferably a QWERTY standard keypad, but could be any keypad used for data entry.

10 A PCB 350 receives data entry from the keypad 340 and provides the electrical platform for optional memory, processing, and logic devices. The PCB 350 is supported by the component housing insert 370, and is formed to accommodate a power source 360 and a means for transmitting 380.

15 *AM/PP* A wireless portfolio may also be configured to take advantage of wireless communications between a PDA, a thin-client, or another computing device (collectively, "computing devices"), and the wireless portfolio. Figure 5 shows a front-closed view of a wireless portfolio configured for wireless communication with a computing device. A folio 510 is shown as a foldable folio that is capable of being securely closed via a zipper 520. Located at some point on the folio 510 or a plurality of light deviating diodes (LEDs) 540. Generally, the LEDs 540 provide a user the ability to monitor wireless communication status information, as discussed in greater detail below. When opened, the folio 510 may rebuild the different modes of wireless communication which it is enabled to provide.

Figure 6 illustrates an alternative embodiment of the wireless portfolio 600 enabled to communicate wirelessly. The wireless portfolio 600 is generally encased by leather (or other attractive and ergonomic covering) that conceals a more functionally shaped, hard interior that provides the proper support structure for the wireless portfolio's electronics, power systems, communication systems, and computing device. The folio 605 includes a interface pocket 610. The interface pocket 610 is preferably a flexible, and expandable pocket that may take the shape of a number of different sized and configured computing devices, such as PDAs, or thin-clients. In addition, it is preferable for the interface pocket 610 to be removable or otherwise interchanged with other interface pockets so that to accommodate a new or different PDA or thin-client, all a user needs to do is exchange an interface pocket 610 with a second interface pocket which can accommodate the PDA or thin-client.

Preferably, the interface pocket 610 is secured to the folio 605 via velcro, a zipper, or straps, for example. Furthermore, it is preferred that the interface pocket 610 provide a user the ability to view a screen of the computing device, and allow a user the ability to interact with the computing device.

The wireless portfolio 600 provides the ability to communicate wirelessly with a remote platform, a wireless data system, or a local PDA, thin-client, or other computing device. For example, an infra-red (IR) transmitter 622 may be provided for allowing the wireless portfolio 600 to send data, voice, video, or other types of transmissions to any of the aforementioned devices. Likewise, an IR receiver 624 is also provided for allowing the wireless portfolio to receive infra-red information

from any of the aforementioned devices. Similarly an antenna for wireless communication 632 is also provided. The antenna for wireless communication 632 may uplink to a wireless data system, may communicate directly with any of the aforementioned devices maintained by the wireless portfolio 600, or may communicate wirelessly to a local client or server device via a wireless local area network.

5

One preferred configuration of the wireless portfolio is that of a wireless portfolio enabled to support a thin-client. Accordingly, Figure 7 is a block-diagram of a wireless portfolio 700 configured to emphasize additional optional enhancements and features that may be associated with a thin-client, PDA, or other device. The wireless portfolio 700 includes a folio 200 which may be any of the aforementioned folio devices, or simply any ergonomic device enabled to maintain the electronics shown, a PDA, thin-client or other device. Similarly, the folio 200 may be configured to hold pads of paper, electronic writing detection tablets, pockets for holding change, keys, credit cards, or any other accessories.

D  
910  
65  
14  
10  
12  
13  
14  
15  
16  
17  
18  
19  
20  
215  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31

20

One enhancement provided by the folio 200 is an infra-red capability shown in Figure 7 as being enabled by IR chip 720. The IR chip 720 provides the wireless portfolio 700 with the transmission and reception protocols needed to enable infra-red communications. An IR transmitter-receiver 722 is coupled to the IR chip 720 and provides the physical production of infra-red signaling as well as the ability to convert received infra-red signals into electronic pulses needed for processing by the processor 420 or the IR chip 720. Preferably, the IR transmitter-receiver 722 is

allowed to protrude slightly away from the folio 200 via a wire or other means so that the IR transmitter-receiver 722 may be directed toward the source or destination of IR transmissions. Also, the IR transmitter-receiver 722 may be split into a separate IR transmitter, and IR receiver.

5

Additional communication capabilities are provided to the folio 200 by a data port 730. The data port 730 is for providing wire based data communications with a client or server. Accordingly, the port 730 may be a serial port, a parallel port, or a hybrid-type port device, such as a SPLIT-BRIDGE TM. Typically, the port 730 is coupled to a processor 420.

10  
15  
20  
25  
30  
35  
40  
45  
50  
55  
60  
65  
70  
75  
80  
85  
90  
95  
100  
105  
110  
115  
120  
125  
130  
135  
140  
145  
150  
155  
160  
165  
170  
175  
180  
185  
190  
195  
200  
205  
210  
215  
220  
225  
230  
235  
240  
245  
250  
255  
260  
265  
270  
275  
280  
285  
290  
295  
300  
305  
310  
315  
320  
325  
330  
335  
340  
345  
350  
355  
360  
365  
370  
375  
380  
385  
390  
395  
400  
405  
410  
415  
420  
425  
430  
435  
440  
445  
450  
455  
460  
465  
470  
475  
480  
485  
490  
495  
500  
505  
510  
515  
520  
525  
530  
535  
540  
545  
550  
555  
560  
565  
570  
575  
580  
585  
590  
595  
600  
605  
610  
615  
620  
625  
630  
635  
640  
645  
650  
655  
660  
665  
670  
675  
680  
685  
690  
695  
700  
705  
710  
715  
720  
725  
730  
735  
740  
745  
750  
755  
760  
765  
770  
775  
780  
785  
790  
795  
800  
805  
810  
815  
820  
825  
830  
835  
840  
845  
850  
855  
860  
865  
870  
875  
880  
885  
890  
895  
900  
905  
910  
915  
920  
925  
930  
935  
940  
945  
950  
955  
960  
965  
970  
975  
980  
985  
990  
995  
1000  
1005  
1010  
1015  
1020  
1025  
1030  
1035  
1040  
1045  
1050  
1055  
1060  
1065  
1070  
1075  
1080  
1085  
1090  
1095  
1100  
1105  
1110  
1115  
1120  
1125  
1130  
1135  
1140  
1145  
1150  
1155  
1160  
1165  
1170  
1175  
1180  
1185  
1190  
1195  
1200  
1205  
1210  
1215  
1220  
1225  
1230  
1235  
1240  
1245  
1250  
1255  
1260  
1265  
1270  
1275  
1280  
1285  
1290  
1295  
1300  
1305  
1310  
1315  
1320  
1325  
1330  
1335  
1340  
1345  
1350  
1355  
1360  
1365  
1370  
1375  
1380  
1385  
1390  
1395  
1400  
1405  
1410  
1415  
1420  
1425  
1430  
1435  
1440  
1445  
1450  
1455  
1460  
1465  
1470  
1475  
1480  
1485  
1490  
1495  
1500  
1505  
1510  
1515  
1520  
1525  
1530  
1535  
1540  
1545  
1550  
1555  
1560  
1565  
1570  
1575  
1580  
1585  
1590  
1595  
1600  
1605  
1610  
1615  
1620  
1625  
1630  
1635  
1640  
1645  
1650  
1655  
1660  
1665  
1670  
1675  
1680  
1685  
1690  
1695  
1700  
1705  
1710  
1715  
1720  
1725  
1730  
1735  
1740  
1745  
1750  
1755  
1760  
1765  
1770  
1775  
1780  
1785  
1790  
1795  
1800  
1805  
1810  
1815  
1820  
1825  
1830  
1835  
1840  
1845  
1850  
1855  
1860  
1865  
1870  
1875  
1880  
1885  
1890  
1895  
1900  
1905  
1910  
1915  
1920  
1925  
1930  
1935  
1940  
1945  
1950  
1955  
1960  
1965  
1970  
1975  
1980  
1985  
1990  
1995  
2000  
2005  
2010  
2015  
2020  
2025  
2030  
2035  
2040  
2045  
2050  
2055  
2060  
2065  
2070  
2075  
2080  
2085  
2090  
2095  
2100  
2105  
2110  
2115  
2120  
2125  
2130  
2135  
2140  
2145  
2150  
2155  
2160  
2165  
2170  
2175  
2180  
2185  
2190  
2195  
2200  
2205  
2210  
2215  
2220  
2225  
2230  
2235  
2240  
2245  
2250  
2255  
2260  
2265  
2270  
2275  
2280  
2285  
2290  
2295  
2300  
2305  
2310  
2315  
2320  
2325  
2330  
2335  
2340  
2345  
2350  
2355  
2360  
2365  
2370  
2375  
2380  
2385  
2390  
2395  
2400  
2405  
2410  
2415  
2420  
2425  
2430  
2435  
2440  
2445  
2450  
2455  
2460  
2465  
2470  
2475  
2480  
2485  
2490  
2495  
2500  
2505  
2510  
2515  
2520  
2525  
2530  
2535  
2540  
2545  
2550  
2555  
2560  
2565  
2570  
2575  
2580  
2585  
2590  
2595  
2600  
2605  
2610  
2615  
2620  
2625  
2630  
2635  
2640  
2645  
2650  
2655  
2660  
2665  
2670  
2675  
2680  
2685  
2690  
2695  
2700  
2705  
2710  
2715  
2720  
2725  
2730  
2735  
2740  
2745  
2750  
2755  
2760  
2765  
2770  
2775  
2780  
2785  
2790  
2795  
2800  
2805  
2810  
2815  
2820  
2825  
2830  
2835  
2840  
2845  
2850  
2855  
2860  
2865  
2870  
2875  
2880  
2885  
2890  
2895  
2900  
2905  
2910  
2915  
2920  
2925  
2930  
2935  
2940  
2945  
2950  
2955  
2960  
2965  
2970  
2975  
2980  
2985  
2990  
2995  
3000  
3005  
3010  
3015  
3020  
3025  
3030  
3035  
3040  
3045  
3050  
3055  
3060  
3065  
3070  
3075  
3080  
3085  
3090  
3095  
3100  
3105  
3110  
3115  
3120  
3125  
3130  
3135  
3140  
3145  
3150  
3155  
3160  
3165  
3170  
3175  
3180  
3185  
3190  
3195  
3200  
3205  
3210  
3215  
3220  
3225  
3230  
3235  
3240  
3245  
3250  
3255  
3260  
3265  
3270  
3275  
3280  
3285  
3290  
3295  
3300  
3305  
3310  
3315  
3320  
3325  
3330  
3335  
3340  
3345  
3350  
3355  
3360  
3365  
3370  
3375  
3380  
3385  
3390  
3395  
3400  
3405  
3410  
3415  
3420  
3425  
3430  
3435  
3440  
3445  
3450  
3455  
3460  
3465  
3470  
3475  
3480  
3485  
3490  
3495  
3500  
3505  
3510  
3515  
3520  
3525  
3530  
3535  
3540  
3545  
3550  
3555  
3560  
3565  
3570  
3575  
3580  
3585  
3590  
3595  
3600  
3605  
3610  
3615  
3620  
3625  
3630  
3635  
3640  
3645  
3650  
3655  
3660  
3665  
3670  
3675  
3680  
3685  
3690  
3695  
3700  
3705  
3710  
3715  
3720  
3725  
3730  
3735  
3740  
3745  
3750  
3755  
3760  
3765  
3770  
3775  
3780  
3785  
3790  
3795  
3800  
3805  
3810  
3815  
3820  
3825  
3830  
3835  
3840  
3845  
3850  
3855  
3860  
3865  
3870  
3875  
3880  
3885  
3890  
3895  
3900  
3905  
3910  
3915  
3920  
3925  
3930  
3935  
3940  
3945  
3950  
3955  
3960  
3965  
3970  
3975  
3980  
3985  
3990  
3995  
4000  
4005  
4010  
4015  
4020  
4025  
4030  
4035  
4040  
4045  
4050  
4055  
4060  
4065  
4070  
4075  
4080  
4085  
4090  
4095  
4100  
4105  
4110  
4115  
4120  
4125  
4130  
4135  
4140  
4145  
4150  
4155  
4160  
4165  
4170  
4175  
4180  
4185  
4190  
4195  
4200  
4205  
4210  
4215  
4220  
4225  
4230  
4235  
4240  
4245  
4250  
4255  
4260  
4265  
4270  
4275  
4280  
4285  
4290  
4295  
4300  
4305  
4310  
4315  
4320  
4325  
4330  
4335  
4340  
4345  
4350  
4355  
4360  
4365  
4370  
4375  
4380  
4385  
4390  
4395  
4400  
4405  
4410  
4415  
4420  
4425  
4430  
4435  
4440  
4445  
4450  
4455  
4460  
4465  
4470  
4475  
4480  
4485  
4490  
4495  
4500  
4505  
4510  
4515  
4520  
4525  
4530  
4535  
4540  
4545  
4550  
4555  
4560  
4565  
4570  
4575  
4580  
4585  
4590  
4595  
4600  
4605  
4610  
4615  
4620  
4625  
4630  
4635  
4640  
4645  
4650  
4655  
4660  
4665  
4670  
4675  
4680  
4685  
4690  
4695  
4700  
4705  
4710  
4715  
4720  
4725  
4730  
4735  
4740  
4745  
4750  
4755  
4760  
4765  
4770  
4775  
4780  
4785  
4790  
4795  
4800  
4805  
4810  
4815  
4820  
4825  
4830  
4835  
4840  
4845  
4850  
4855  
4860  
4865  
4870  
4875  
4880  
4885  
4890  
4895  
4900  
4905  
4910  
4915  
4920  
4925  
4930  
4935  
4940  
4945  
4950  
4955  
4960  
4965  
4970  
4975  
4980  
4985  
4990  
4995  
5000  
5005  
5010  
5015  
5020  
5025  
5030  
5035  
5040  
5045  
5050  
5055  
5060  
5065  
5070  
5075  
5080  
5085  
5090  
5095  
5100  
5105  
5110  
5115  
5120  
5125  
5130  
5135  
5140  
5145  
5150  
5155  
5160  
5165  
5170  
5175  
5180  
5185  
5190  
5195  
5200  
5205  
5210  
5215  
5220  
5225  
5230  
5235  
5240  
5245  
5250  
5255  
5260  
5265  
5270  
5275  
5280  
5285  
5290  
5295  
5300  
5305  
5310  
5315  
5320  
5325  
5330  
5335  
5340  
5345  
5350  
5355  
5360  
5365  
5370  
5375  
5380  
5385  
5390  
5395  
5400  
5405  
5410  
5415  
5420  
5425  
5430  
5435  
5440  
5445  
5450  
5455  
5460  
5465  
5470  
5475  
5480  
5485  
5490  
5495  
5500  
5505  
5510  
5515  
5520  
5525  
5530  
5535  
5540  
5545  
5550  
5555  
5560  
5565  
5570  
5575  
5580  
5585  
5590  
5595  
5600  
5605  
5610  
5615  
5620  
5625  
5630  
5635  
5640  
5645  
5650  
5655  
5660  
5665  
5670  
5675  
5680  
5685  
5690  
5695  
5700  
5705  
5710  
5715  
5720  
5725  
5730  
5735  
5740  
5745  
5750  
5755  
5760  
5765  
5770  
5775  
5780  
5785  
5790  
5795  
5800  
5805  
5810  
5815  
5820  
5825  
5830  
5835  
5840  
5845  
5850  
5855  
5860  
5865  
5870  
5875  
5880  
5885  
5890  
5895  
5900  
5905  
5910  
5915  
5920  
5925  
5930  
5935  
5940  
5945  
5950  
5955  
5960  
5965  
5970  
5975  
5980  
5985  
5990  
5995  
6000  
6005  
6010  
6015  
6020  
6025  
6030  
6035  
6040  
6045  
6050  
6055  
6060  
6065  
6070  
6075  
6080  
6085  
6090  
6095  
6100  
6105  
6110  
6115  
6120  
6125  
6130  
6135  
6140  
6145  
6150  
6155  
6160  
6165  
6170  
6175  
6180  
6185  
6190  
6195  
6200  
6205  
6210  
6215  
6220  
6225  
6230  
6235  
6240  
6245  
6250  
6255  
6260  
6265  
6270  
6275  
6280  
6285  
6290  
6295  
6300  
6305  
6310  
6315  
6320  
6325  
6330  
6335  
6340  
6345  
6350  
6355  
6360  
6365  
6370  
6375  
6380  
6385  
6390  
6395  
6400  
6405  
6410  
6415  
6420  
6425  
6430  
6435  
6440  
6445  
6450  
6455  
6460  
6465  
6470  
6475  
6480  
6485  
6490  
6495  
6500  
6505  
6510  
6515  
6520  
6525  
6530  
6535  
6540  
6545  
6550  
6555  
6560  
6565  
6570  
6575  
6580  
6585  
6590  
6595  
6600  
6605  
6610  
6615  
6620  
6625  
6630  
6635  
6640  
6645  
6650  
6655  
6660  
6665  
6670  
6675  
6680  
6685  
6690  
6695  
6700  
6705  
6710  
6715  
6720  
6725  
6730  
6735  
6740  
6745  
6750  
6755  
6760  
6765  
6770  
6775  
6780  
6785  
6790  
6795  
6800  
6805  
6810  
6815  
6820  
6825  
6830  
6835  
6840  
6845  
6850  
6855  
6860  
6865  
6870  
6875  
6880  
6885  
6890  
6895  
6900  
6905  
6910  
6915  
6920  
6925  
6930  
6935  
6940  
6945  
6950  
6955  
6960  
6965  
6970  
6975  
6980  
6985  
6990  
6995  
7000  
7005  
7010  
7015  
7020  
7025  
7030  
7035  
7040  
7045  
7050  
7055  
7060  
7065  
7070  
7075  
7080  
7085  
7090  
7095  
7100  
7105  
7110  
7115  
7120  
7125  
7130  
7135  
7140  
7145  
7150  
7155  
7160  
7165  
7170  
7175  
7180  
7185  
7190  
7195  
7200  
7205  
7210  
7215  
7220  
7225  
7230  
7235  
7240  
7245  
7250  
7255  
7260  
7265  
7270  
7275  
7280  
7285  
7290  
7295  
7300  
7305  
7310  
7315  
7320  
7325  
7330  
7335  
7340  
7345  
7350  
7355  
7360  
7365  
7370  
7375  
7380  
7385  
7390  
7395  
7400  
7405  
7410  
7415  
7420  
7425  
7430  
7435  
7440  
7445  
7450  
7455  
7460  
7465  
7470  
7475  
7480  
7485  
7490  
7495  
7500  
7505  
7510  
7515  
7520  
7525  
7530  
7535  
7540  
7545  
7550  
7555  
7560  
7565  
7570  
7575  
7580  
7585  
7590  
7595  
7600  
7605  
7610  
7615  
7620  
7625  
7630  
7635  
7640  
7645  
7650  
7655  
7660  
7665  
7670  
7675  
7680  
7685  
7690  
7695  
7700  
7705  
7710  
7715  
7720  
7725  
7730  
7735  
7740  
7745  
7750  
7755  
7760  
7765  
7770  
7775  
7780  
7785  
7790  
7795  
7800  
7805  
7810  
7815  
7820  
7825  
7830  
7835  
7840  
7845  
7850  
7855  
7860  
7865  
7870  
7875  
7880  
7885  
7890  
7895  
7900  
7905  
7910  
7915  
7920  
7925  
7930  
7935  
7940  
7945  
7950  
7955  
7960  
7965  
7970  
7975  
7980  
7985  
7990  
7995  
8000  
8005  
8010  
8015  
8020  
8025  
8030  
8035  
8040  
8045  
8050  
8055  
8060  
8065  
8070  
8075  
8080  
8085  
8090  
8095  
8100  
8105  
8110  
8115  
8120  
8125  
8130  
8135  
8140  
8145  
8150  
8155  
8160  
8165  
8170  
8175  
8180  
8185  
8190  
8195  
8200  
8205  
8210  
8215  
8220  
8225  
8230  
8235  
8240  
8245  
8250  
8255  
8260  
8265  
8270  
8275  
8280  
8285  
8290  
8295  
8300  
8305  
8310  
8315  
8320  
8325  
8330  
8335  
8340  
8345  
8350  
8355  
8360  
8365  
8370  
8375  
8380  
8385  
8390  
8395  
8400  
8405  
8410  
8415  
8420  
8425  
8430  
8435  
8440  
8445  
8450  
8455  
8460  
8465  
8470  
8475  
8480  
8485  
8490  
8495  
8500  
8505  
8510  
8515  
8520  
8525  
8530  
8535  
8540  
8545  
8550  
8555  
8560  
8565  
8570  
8575  
8580  
8585  
8590  
8595  
8600  
8605  
8610  
8615  
8620  
8625  
8630  
8635  
8640  
8645  
8650  
8655  
8660  
8665  
8670  
8675  
8680  
8685  
8690  
8695  
8700  
8705  
8710  
8715  
8720  
8725  
8730  
8735  
8740  
8745  
8750  
8755  
8760  
8765  
8770  
8775  
8780  
8785  
8790  
8795  
8800  
8805  
8810  
8815  
8820  
8825  
8830  
8835  
8840  
8845  
8850  
8855  
8860  
8865  
8870  
8875  
8880  
8885  
8890  
8895  
8900  
8905  
8910  
8915  
8920  
8925  
8930  
8935  
8940  
8945  
8950  
8955  
8960  
8965  
8970  
8975  
8980  
8985  
8990  
8995  
9000  
9005  
9010  
9015  
9020  
9025  
9030  
9035  
9040  
9045  
9050  
9055  
9060  
9065  
9070  
9075  
9080  
9085  
9090  
9095  
9100  
9105  
9110  
9115  
9120  
9125  
9130  
9135  
9140  
9145  
9150  
9155  
9160  
9165  
9170  
9175  
9180  
9185  
9190  
9195  
9200  
9205  
9210  
9215  
9220  
9225  
9230  
9235  
9240  
9245  
9250  
9255  
9260  
9265  
9270  
9275  
9280  
9285  
9290  
9295  
9300  
9305  
9310  
9315  
9320  
9325  
9330  
9335  
9340  
9345  
9350  
9355  
9360  
9365  
9370  
9375  
9380  
9385  
9390  
9395  
94

5 may include indications of strength of transmission, speed of transmission, quality of transmission, or whether information is being downloaded to the computing device or being uploaded from the computing device. In a preferred embodiment, the invention uses LEDs to show a user that certain levels of service commensurate with a wireless network use agreement are being met by the wireless network provider. Similarly, a second LED may show the status of wireless communication with an IR device. Likewise, a third LED may show the status of wireless communication with a local device maintained within the folio 200, such as a PDA, a thin-client, or other device. Of course, other LEDs may be provided to show other types of status information including various stages of communication with a single or multiple wireless communications.

10 The folio 200 maintains a transceiver 430 having a wireless antenna 432. The wireless antenna 432 may provide the ability to communicate wirelessly with a local network, or with a local device maintained by an interface 410. The interface 410 is preferably a pocket, and although the interface 410 may include a port for connection to a PDA or a thin-client, preferably the interface 410 merely provides physical structural support for maintaining the PDA or thin-client within the folio in a reliable manner. Accordingly, the wireless antenna 432 enables wireless communication with a thin-client 710 or PDA, or other device. Preferably, the thin-client 710 maintains a transceiver 712 which is coupled to an antenna for wireless communication 714. Preferably, the wireless portfolio computing device uses a palm-based operating system or a windows "CE" operating system (or some variant of these). However, it should be noted that the invention could be implemented  
20

using any operating system. Preferably, the computing device is a thin client that is enabled to support an IRDA Infra Red Data Association IR Comm Protocol, a Blue Tooth protocol, or a varient of the IEEE 802.11 or 802.11b radio protocols. Optionally, a plurality of available protocols could be supported on a single platform

5

The transceiver 712 is enabled to transceive audio, video, data, or other information via the antenna for wireless communication 714. Furthermore, in practice, the antenna for wireless communication 714 communicates with the electronics of the wireless portfolio 700 via the wireless antenna 432. Of course, other thin-client embodiments are possible.

10  
15  
20  
25  
30  
35  
40  
45  
50  
55  
60  
65  
70  
75  
80  
85  
90  
95  
100  
105  
110  
115

Though the invention has been described with respect to a specific preferred embodiment, many variations and modifications will become apparent to those skilled in the art upon reading the present application. It is therefore the intention that the appended claims be interpreted as broadly as possible in view of the prior art to include all such variations and modifications.